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A Policy Analysis for the Implementation of the Generic
Inventory Package in a Medical Center Engineering Supply
Warehouse

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Disclaimer: The views expressed in this paper are those of the
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Abstract

The Veteran's Administration mandated the implementation of the Generic Inventory Package (GIP) to assist medical center directors in the fiscal management of their purchasing programs. The Generic Inventory Package was to be implemented in March 2003 by all purchasing activities involving their primary and secondary supply accounts. The Salt Lake City VA Medical Center failed to effectively implement GIP in their engineering department as assessed in July 2005 by the Veteran's Affairs Office of Inspector General. Three policy options for the implementation were developed based on resources available. On December 15, 2007 the Salt Lake City VA implemented a new primary account, staffed by the material management section and was effective at timely implementation to the desires of the Director of the Network for the Veteran's Administration.

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INTRODUCTION

Purpose of the Study

The purpose of the study is to evaluate the current utilization level of the Generic Inventory Package (GIP) material management system in the Veterans Affairs Salt Lake City Health Care System Engineering Department. The evaluation will be primarily focused on the qualitative relationships of logistics management and will include the quantitative measures used by senior management to evaluate performance. The GIP is required by VA Handbook 7176 (U.S. Department of Veterans Affairs, 2002) to be fully implemented and this policy option study will present three policy options for the effective implementation.

Objective of the Study

The objective of the study was to ensure that our Nation's veterans receive high quality and cost-effective VA health care and benefits services through compliance with the implementation of GIP in the Engineering Department. The Veterans Health Administration (VHA) and the OIG have instituted collaborative assessments of VA medical facilities and regional offices with the purpose to evaluate how well VA facilities are accomplishing their missions of providing veterans convenient access to high quality medical and benefits services. An integral part of

delivering high quality health care is that management controls built into the GIP system ensures compliance with regulations and VA policies, assist management in achieving program goals, and minimize vulnerability to fraud, waste, and abuse.

Quantification of the Problem

In the Fiscal Year 2003 Annual Performance and Accountability Report the VA OIG has issued six national audits of inventory management practices for the various supply categories (Department of Veterans Affairs Office of Management, 2003). The VA OIG identified \$388.5 million in potential cost savings if effective management practices were instituted broken out as follows (Department of Veterans Affairs Office of Management, 2003):

Supply Area	Potential Savings (\$ in millions)
Medical Supply Inventories	75.6
Prosthetic Supply	31.4
Pharmaceutical Inventory	30.6
Engineering Supply	168.4
Miscellaneous Supply	53.7
CMOP Inventory	28.8
Total	388.5

Figure 1. Potential Savings (dollars in millions)

The VA OIG made recommendations to eliminate excess inventories, improving inventory management, and develop criteria for adding new items to product lines (Department of Veterans Affairs Office of Management, 2003).

Qualitative Analysis of the Problem

The Office of Inspector General (OIG) conducted a Combined Assessment Program (CAP) review (Department of Veterans Affairs Office of the Inspector General, 2005) of the Veterans Affairs Salt Lake City Health Care System (VASLCHCS). The purpose of the CAP review was to evaluate selected operations, specifically financial and administrative controls while focusing on patient care administration and quality management. The CAP review (Department of Veterans Affairs Office of the Inspector General, 2005) covered the following 12 operational activities:

- Colorectal Cancer Management
- Part-Time Physician Timekeeping
- Community Nursing Home Contracts
- Pharmacy Security
- Controlled Substances Accountability
- Pressure Ulcer Clinical Practices
- Environment of Care
- Quality Management
- Information Technology Security
- Service Contracts
- Medical Care Collections Funds
- Supply Inventory Management

The OIG report made recommendations in 8 of the 12 activities reviewed. One of the recommendations concluded that the VASLCHCS needed to reduce the excess supply and improve inventory management controls (Department of Veterans Affairs Office of the Inspector General, 2005).

The OIG determined that the Salt Lake City Health Care System Engineering Section had failed to implement the Generic

Inventory Package (GIP) software for inventory management. The VASLCHCS staff was not using GIP to establish normal stock levels, analyze usage data, and perform periodic physical inventories. The Chief of Engineering Section acknowledged the need to fully implement GIP controls for all engineering supplies (Department of Veterans Affairs Office of Inspector General, 2005).

VA GIP Implementation Analysis

The review of recurring and systemic issues identified during CAP reviews at VA facilities have continued to show that VHA management needs to strengthen controls over the management of supply inventories, including medical, surgical, prosthetic, engineering, and other miscellaneous supplies (Department of Veterans Affairs Office of the Inspector General, 2006a). The VA OIG identified 176 VHA facilities where improvements were needed to effectively manage inventories between January 1999 and August 2006. VHA policy establishes a 30-day supply goal for most items and mandates the use of the Generic Inventory Package (GIP) to manage medical, surgical, engineering, and miscellaneous supply inventories and the Prosthetics Inventory Package (PIP) to manage the prosthetic supply inventory (U.S. Department of Veteran Affairs, 2000a). Since their inception, CAP reviews have consistently found that VA medical facilities did not: (1) fully utilize GIP for all supply inventories; (2)

regularly update GIP and PIP to ensure accurate inventory levels; (3) adequately train staff to use GIP and PIP; or (4) periodically perform physical inventories to verify GIP or PIP records. As a result, the medical facilities could not ensure that automated inventory records were accurate or supply levels were appropriate (Department of Veterans Affairs Office of Inspector General, 2006a).

To strengthen controls over supply inventory management, the VA OIG highlighted the following significant recommendations made during CAP reviews:

- Require staff to accurately record inventory transactions in GIP and PIP and keep stock levels current.
- Monitor item usage rates, reconcile differences between actual and recorded stock levels, and adjust stock levels as appropriate.
- Perform periodic physical inventories.
- Reduce excess inventories.
- Train staff responsible for using and maintaining GIP and PIP, and provide refresher training as needed.

In the Fiscal Year 2003 Annual Performance and Accountability Report, inventory management was identified as a serious issue in VA logistics system (Department of Veterans Affairs Office of Management, 2003). By improving inventory management nationwide, the VA can potentially reduce excess

inventories, ensure appropriate stock levels to meet patient needs, and prevent conversion problems for the future integrated financial and logistics system (Department of Veterans Affairs Office of Management, 2003).

VHA officials have recognized the issues pertaining to inventory management, and have taken actions to effectively implement CAP review recommendations. Efforts that are underway include: rewriting the *Inventory Management Handbook*, programming changes to GIP, monitoring reviews by the Chief Logistics Officer, and ongoing training for GIP and PIP users. However, CAP review results continue to support that additional efforts are needed to strengthen inventory management controls (Department of Veterans Affairs Office of Inspector General, 2006a).

The transition from VHA policies and directives as described in the previous section will be contrasted by practices in the VASLCHCS and three other VA facilities. The facilities profiled are: the Northport VA Medical Center in Northport, New York, John J. Pershing VA Medical Center in Poplar Bluff, Missouri, and the Muskogee VA Medical Center in Muskogee, Oklahoma. The Veteran's Affairs administration is prescriptive in organizational aspects of their medical centers. They have published manuals such as *VHA Inventory Handbook* (U.S. Department of Veterans Affairs, 2000a). The processes within the

manual describe how a medical center is to operate, and specific to this manual is inventory management. The factors that will impact on operations include: the physical location, workload data, fiscal considerations, and partner relationships. The profiles of the three medical centers will be contained in the following section and includes detailed information to the above listed factors.

EVIDENCE

Assessment of the Salt Lake City VA Medical Center

Based in Salt Lake City, the health care system is a tertiary care system that provides a broad range of inpatient and outpatient health care services. Outpatient care is also provided at nine community-based outpatient clinics in Ogden, Orem, St. George, Roosevelt, Nephi, and Fountain Green, UT; Pocatello, ID; Ely, NV; and Green River, WY. The VASLCHCS serves a population of about 194,600 veterans in a primary service area that includes 49 counties in Utah, Idaho, Nevada, and Wyoming.

The VASLCHCS provides medical, surgical, mental health, geriatric and advanced rehabilitation services and has 121 beds. Special programs include the North Star Residential Substance Abuse Program, a Cardiac Transplant Program, and a Women Veterans Program. The VASLCHCS also has sharing agreements with Hill Air Force Base, Fort Douglas Army Reserve Center, the Utah Air National Guard, and the U.S. Army-Baylor University Graduate Program.

The VASLCHCS is affiliated with the University of Utah School of Medicine and supports 850 medical residents, interns, and students in 50 training programs. The VASLCHCS is also affiliated with several other universities to provide clinical training opportunities for nursing, pharmacy, dental, and physical therapy students. In fiscal year (FY) 2004, the

VASLCHCS research program had 256 VA projects and 156 non-VA projects and a combined budget of \$11.6 million. Important research areas include biomedical research in nephrology, stem cell research in cardiology, and rehabilitation research in strokes and amputations.

Salt Lake City Health Care System had a FY 2005 medical care budget of \$205.6 million, which reflects less than a 1 percent increase over FY 2004 funding of \$204.4 million. FY 2004 staffing was 1,277 full-time equivalent employees (FTE), including 79 physicians FTE and 322 nursing FTE.

In FY 2004, the VASLCHCS treated 36,762 unique patients, which reflects a 6 percent increase from FY 2003. The FY 2004 inpatient average daily census was 101, and outpatient workload totaled 345,280 patient visits (a 3 percent increase from FY 2003).

The VAOIG conducted a review of the Salt Lake City Health Care System during the week of April 11-15, 2005 (Department of Veteran Affairs Office of the Inspector General, 2005). The purpose of the review was to evaluate selected operations, focusing on patient care administration, quality management, and financial and administrative controls. In total, the VAOIG CAP review covered 12 operational areas, to include supply inventory management.

In FY 2004, the VASLCHCS spent \$15.9 million on medical, prosthetic, and engineering supplies. To ensure effective management of this level of spending the VHA requires that medical facilities use the VA's Generic Inventory Package and Prosthetic Inventory Package. This extended to the use of GIP to manage inventories of engineering supplies (Department of Veterans Affairs Office of Inspector General, 2005).

In a 2004 memorandum, the Deputy Under Secretary for Health for Operations and Management suspended the 30-day stock level requirement for engineering inventories (Miller, 2004). The VAOIG focused on determining whether the VASLCHCS was using GIP to manage engineering supplies. The VAOIG determined that the Engineering Department was not using GIP to establish normal stock levels, analyze usage data, and perform periodic physical inventories (Department of Veterans Affairs Office of Inspector General, 2005).

The findings of the VAOIG report included the recommendation that the VISN Director ensure that the VASLCHCS director require that the engineering department staff implement GIP for all engineering supplies. The VISN and the Medical Center Directors agreed with the VAOIG findings and recommendations and agreed to submit a corrective action plan for implementation of the GIP to automate the inventory process. The plan would have the goal of greatly increasing the accuracy

of the supply inventory. The target date for full implementation was set for October 2006, based on an approved action plan (Department of Veterans Affairs Office of Inspector General, 2005).

The Generic Inventory Package program is a critical tool in a standardized report for the overall fiscal management of a medical center (U.S. Department of Veterans Affairs, 2000b). The medical center director and the VISN director are monitoring the implementation process and are required by the VA Office of Inspector General to report on the progression of the GIP implementation. The monitoring of the process and the reporting of the progression to the VAOIG requires both the VASLCHCS Director's signature and the VA Rocky Mountain Network Director's signature as part of a chronological memorandum. The two Directors' are continuously monitoring the process so that compliance can be achieved at the earliest possible date so that full compliance to the VA directives is achieved.

Medical Center Profile - Salt Lake City Health Care System
(VASLCHCS), Salt Lake City Utah

The engineering department at VASLCHCS had a fiscal year 2006 supply budget of \$694,280 for maintenance, repair and operations out of a total engineering department budget of \$14.3 million. The process of budget analysis continues to show that in addition to the maintenance, repair and operations fund

control point, additional fund control points includes the purchase of supplies and parts that are earmarked for specific projects. These supplies could be incorporated into the general supply of the engineering department and would greatly increase the maintenance, repair and operations fund control point dollar figure.

The Engineering Department represents the single largest purchasing department within the medical center and does so without any dedicated supply or purchasing personnel. Purchasing agent support to the engineering department is by personnel from the Acquisition and Material Management Division. The supply operations in the Engineering Department were managed internally in the Engineering Department and did not include any personnel trained in supply chain management.

There are 14 supply locations in the Engineering Department that includes one primary location and thirteen secondary inventory locations. The locations are primarily the individual engineering shops that collectively comprise the engineering department. The primary account currently established is in Building 38 and comprises inventory items that are being held in numbers and size that do not allow for storage in the secondary location. This use of the primary account is opposite of the VA directives that indicates that the primary account is to be

mainly used for short-term storage of items that have a relatively high turnover rate.

The VA policies and procedures are outlined in a number of publications, primarily in VA and VHA Directives and Handbooks. The VA website (<http://www1.va.gov/vapubs/>) contains 130 Directives and 164 Handbooks, but this expands with the 426 VHA Directives, 158 VHA Handbooks and 250 manuals. Acquisition and Material Management Handbooks are numbered in the 7000 and 7100 series. Specific guidance in material management is found in VA Handbook 7127. The Office of Acquisition and Material Management manages this series of handbooks.

The VA documents for the implementation of the Generic Inventory Package are found in the Integrated Funds Distribution, Control Point Activity, Accounting and Procurement (IFCAP) manual (U.S. Department of Veterans Affairs, 2000b). The current version of this document is version 5.1 released October 2000. The VHA also released handbook 1761.2 on 19 March 2003 that provides the guidance for the elimination of excess and unofficial supply inventories. This handbook mandates the use of the Generic Inventory Package to manage all inventories. The handbook provides structure for inventory staff training and provides procedures to monitor progress in reducing inventories (U.S. Department of Veterans Affairs, 2000a).

Literature Review

In 1995, Ram Ganeshan and Terry Harrison (Ganeshan & Harrison, 1995) from the Department of Management Science and Information Systems at Penn State University described supply chain management as a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. They concluded that supply chains exist in both service organizations, like hospitals, and in manufacturing organizations. The complexity of the supply chain will vary from industry to industry and within the same industry but at different facilities. Ganeshan and Harrison concluded that there are four major decision areas: 1) location, 2) production, 3) inventory, and 4) transportation. Their analysis showed that holding of inventory can cost between 20 and 40 percent of the value of the inventory and efficient management is critical in containing costs (Ganeshan & Harrison, 1995).

Effective Inventory Management, Inc. in a 2002 article by Jon Schreibfeder titled "Handling Maintenance Repairs and Operations Inventory" describes that most companies maintain an on-hand quantity of maintenance, repairs, and operations (MRO) inventory (Schreibfeder, 2002). The article reminded that MRO inventory is held as an expense of doing business. In the

article it describes that each item maintained must meet specific criteria for it to be retained in stock as inventory. Schreibfeder (2002) used a 2-stage matrix that separated the MRO inventory into three categories and further sub-divides them into three critical nature classifications. Through the use of this 2-stage matrix, the on-hand quantity levels are determined for each item (Schreibfeder, 2002).

The median hospital operating margin in 2003 was a negative 1.8 percent (Kamani, 2004). With negative margins, hospitals are under intense financial pressure to continue to deliver increasing levels of health care while developing strategies to contain costs. Kamani reports that hospitals typically budget 25 to 30 percent of their operating expense for the purchase of medical supplies. The ability to track the expenditure of these funds is critical to the overall performance of the hospital. According to "Hospital Supply Chain Savings", 70 percent of hospitals supply expenditure is misclassified or unclassified in their supply accounting systems decreasing their ability to accurately identify spending patterns and implementing initiatives for cost containment (Kamani, 2004).

Comparative Practices within the VA

The Office of the Inspector General for Veterans Affairs released in September 1995, a report titled, "Operating Supply Inventories at VA Medical Centers" (Department of Veterans

Affairs Office of Inspector General, 1995). The report concluded that, in general, excessive amounts of on-hand inventories existed and most of the inventory items were not recorded on supply control records. The OIG concluded that without the knowledge of the value of the carrying costs of the undocumented inventory, the medical centers couldn't accurately reflect the costs of providing health care services. In response to this report, the Under Secretary for Health, Dr. Kenneth Kizer, released an Information Letter for Medical Center Inventory Management. Dr. Kizer's directive included the need for the Medical Centers to implement "Inventory management automation, such as Integrated Funds Control Acquisition Program/General Inventory Program (IFCAP/GIP); bar-coding; and a coordinated internal material management strategy" (Kizer, 1995, p.1).

The VAOIG issued report number 06-03441-227 on September 25, 2006 titled, Review of Recurring and Systemic Issues Identified during Combined Assessment Program Reviews at VA Facilities from January 1999 through August 2006. The VAOIG found 176 Veterans Health Administration facilities where improvements were needed to effectively manage inventories. Through a VHA policy, the Generic Inventory Package is to be utilized for the establishment of 30-day supply goals for the management of medical, surgical, and engineering inventories.

The VA OIG has found four deficient areas of supply management; 1) Medical facilities have routinely failed to fully implement GIP for all supply inventories, 2) A failure to regularly update GIP stock movement in and out of on-hand accounts has resulted in inaccurate inventory levels, 3) Adequately train staff to use GIP, and 4) Periodically perform physical inventories to verify GIP records (Department of Veterans Affairs Office of Inspector General, 2006a).

With the uniqueness of the GIP to the VHA system and operating practices maintained by the 173 hospital system being standardized, the best practices can be found among those hospitals in the VHA system that have effectively implemented GIP as determined through the inspection process implemented by the VAOIG during CAP inspections. The OIG conducts the CAP inspections on a periodic basis for the determination of compliance to the directives as issued by the Central Office of the VA. These reports do not always include information relating to GIP implementation; however the following profiles did include information on GIP implementation and associated problems the facility is having at managing the GIP program. The CAP reports includes a description of factors that impact on operations and include: the physical location, workload data, fiscal considerations, and partner relationships.

Veteran's Affairs administration is prescriptive in organizational aspects of their medical centers. The VA has published manuals such as VHA Inventory Handbook (U.S. Department of Veterans Affairs, 2000a). The processes within the manual describe how a medical center is to operate, and specific to this manual is inventory management. The descriptive factors of the three profiled medical centers is provided so variances in operations may be partially accounted for, but an explanation of each of these descriptive factors and its particular impact upon logistical operations at each facility exceeds the intent of this analysis.

Medical Center Profile - Northport VA Medical Center,
Northport, New York

The Northport VA Medical Center is a tertiary care medical center that provides a broad range of inpatient and outpatient health care services. Outpatient care is also provided at three community-based outpatient clinics located in Plainview, Patchogue, and Westhampton, NY. In addition, the medical center operates seven mental health clinics in Nassau and Suffolk Counties, NY. The medical center is part of VISN 3 and serves a veteran population of about 220,000 in a primary service area that includes 2 counties in New York (Department of Veterans Affairs Office of Inspector General, 2004).

In Fiscal Year (FY) 2003, the medical center treated 38,176 unique patients, a 4 percent decrease from FY 2002. The decrease in unique patients occurred through attrition and because of a VA moratorium on veteran community outreach and the discontinuance of enrollment of Priority Group 8 veterans, since many of the veterans residing in the medical center's primary service area fall into this higher income group. Inpatient care, including Psychosocial Residential and Rehabilitation Treatment Program (PRRTP) workload, totaled 3,258 discharges, and the average daily census, including nursing home patients, was 260.4. The outpatient workload was 307,672 visits (Department of Veterans Affairs Office of Inspector General, 2004).

In FY 2003, the medical center's medical care expenditures totaled \$173.6 million. The FY 2004 medical care budget is \$179.1 million, 3 percent more than FY 2003 expenditures. FY 2003 staffing was 1,548 full-time equivalent employees (FTEE), including 95.8 physician and 304 nursing FTEE (Department of Veterans Affairs Office of Inspector General, 2004).

The medical center provides care in the areas of medicine, surgery, psychiatry, physical medicine and rehabilitation, neurology, oncology, dentistry, geriatrics, and extended care. The medical center has 161 hospital beds, 170 nursing home beds, and 42 PRRTP beds (Department of Veterans Affairs Office of Inspector General, 2004).

The medical center is affiliated with the State University of New York (SUNY) Medical School at Stony Brook and supports 122 medical resident positions in 11 training programs. In FY 2003, the medical center's research program had 103 projects and a budget of \$2 million. Areas of research included cancer, lung disease, heart disease, hypertension, prostrate disorders, arthritis, and skin disease (Department of Veterans Affairs Office of Inspector General, 2004).

The VAOIG concluded that the medical center management needed to establish controls to strengthen accountability and effectively manage engineering and medical supply inventories. In FY 2003, the medical center spent \$1,463,927 on engineering supplies and \$1,890,708 on medical supplies, for a combined total of \$3,354,635. The Veterans Health Administration's (VHA's) goal is to reduce supply inventories to 30-day levels. VHA requires medical facilities to use VA's Generic Inventory Package (GIP) to establish proper inventory levels, set reorder quantities, and track supply usage. The following conditions required management attention.

Engineering Service did not effectively implement GIP to manage the engineering supplies inventory. Personnel were not adequately trained to use GIP for ordering supplies, processing receipts, and tracking the use of supplies. This resulted in inaccurate GIP stock levels, turnover rates, and usage rates. To

test the accuracy and reasonableness of inventory levels, the VAOIG reviewed a judgment sample of 10 engineering supply items from the universe of 40 items in GIP. The VAOIG compared the quantities on hand with the GIP November 2003 Stock Status Report for Engineering, and found that stock levels for 7 of the 10 items sampled were inaccurate. The quantities in GIP were overstated for six of the seven items and understated for the remaining item. This occurred because staff was not adequately trained to track receipts and withdrawals of supplies in the GIP database (Department of Veterans Affairs Office of Inspector General, 2004).

The Supply Processing and Distribution (SPD) Section did not effectively implement GIP to manage approximately 850 medical supply items. Although a wall-to-wall inventory was conducted in August 2003, GIP was not updated with the results and maintained thereafter because staff was not adequately trained to track receipts and withdrawals of supplies in the GIP database. In addition, bar coding and scanning procedures, which are critical for identifying items and amounts required for restocking, had not been implemented as required by VHA. In the CAP report a Days of Stock on Hand Report was cited that showed the on-hand value of the SPD inventory was \$324,536. A total of \$253,000 (78 percent) appeared as excess inventory (greater than 30 days supply) in the report. To test the accuracy of the

inventory valuation and quantities on hand, the VAOIG reviewed a judgment sample of 10 medical supply items listed in the report. The quantities on hand and corresponding dollar values were incorrect for 8 of the 10 items. Quantities and dollar values were overstated for six of the eight items and understated for the remaining two items. The VAOIG report concluded that SPD staff made the necessary corrections for these items during our review (Department of Veterans Affairs Office of Inspector General, 2004).

Medical Center Profile - John J. Pershing VA Medical Center,
Popular Bluff, Missouri

Located in Poplar Bluff, Missouri, the medical center is a primary care facility that provides inpatient and outpatient health care services. The medical center operates four community-based outpatient clinics located in Cape Girardeau, Farmington, and West Plains, Missouri; and in Paragould, Arkansas. Tertiary care support is provided by VA medical centers (VAMCs) in St. Louis and Columbia, Missouri, and Memphis, Tennessee; and at the Healthcare System (HCS) Little Rock, Arkansas. The medical center is part of VISN 15 and serves about 70,000 veterans in a primary service area that includes 24 counties in Missouri and 6 counties in Arkansas (Department of Veterans Affairs Office of Inspector General, 2006b).

The medical center provides inpatient and outpatient mental health and substance abuse treatment. It operates 18 internal medicine hospital beds and 40 long-term care beds (Department of Veterans Affairs Office of Inspector General, 2006b).

In fiscal year (FY) 2004, the medical center's expenditures totaled \$47.2 million. The FY 2005 medical care operating budget was \$48.8 million. FY 2005 staffing was 420 full-time equivalent employees (FTE), including 20 physician FTE and 96 nursing FTE (Department of Veterans Affairs Office of Inspector General, 2006b).

In FY 2004, the medical center treated 18,796 unique patients, a 3.7 percent increase over FY 2004. Inpatient workload totaled 1,604 patients. The average daily census was 16 for internal medicine care beds and 36 for long-term care beds. The medical center reported 131,587 outpatient visits during FY 2004 (Department of Veterans Affairs Office of Inspector General, 2006b).

Inventory levels reported in GIP and PIP were not accurate. As of September 14, 2005, the value of 21 engineering supply items reported in GIP was \$5,015. The VAOIG reviewed 10 engineering supply items in GIP valued at \$4,012 and found errors in reported stock levels that resulted in a net understatement of \$313. As of September 15, 2005, the value of 126 prosthetics supply inventory items reported in PIP was

\$23,545. The VAOIG reviewed 10 items valued at \$6,649 and found errors in reported stock levels that resulted in a net overstatement of \$524 (Department of Veterans Affairs Office of Inspector General, 2006b).

The VAOIG report stated that according to the Logistics Section inventory management supervisor, the misreporting of both engineering and prosthetics inventory occurred in part because staff using the supplies did not notify inventory management staff when items were removed from or returned to inventory (Department of Veterans Affairs Office of Inspector General, 2006b).

Eight of the 10 sampled engineering supply items exceeded a 30-day supply, ranging from 36 to 700 days, and the value of the excess stock was \$2,392. Five of the 10 prosthetics items sampled exceeded a 30-day supply, ranging from 33 to 417 days, and the value of the excess stock was \$1,116 (Department of Veterans Affairs Office of Inspector General, 2006b).

Medical Center Profile - Muskogee VA Medical Center,
Muskogee, Oklahoma

The medical center is a general medical and surgical facility that provides a broad range of inpatient and outpatient health care services. Outpatient care is also provided at two community based outpatient clinics (CBOCs) in Tulsa and McAlester. The medical center is part of the South Central VA

Healthcare Network that provides care to over 42,250 enrolled veterans in the 25 counties in its service area (Department of Veterans Affairs Office of Inspector General, 2006c).

The medical center has 50 hospital beds that provide primary and consultative care in medicine, surgery, and mental health. Preventive and acute health care is provided through primary care, medicine, surgery, psychiatry, physical medicine and rehabilitation, oncology, dentistry, and geriatrics (Department of Veterans Affairs Office of Inspector General, 2006c).

The medical center's fiscal year (FY) 2005 medical care budget was \$105.5 million. FY 2005 staffing was 688.3 full-time equivalent (FTE) employees, including 53 physician FTE and 178 nursing FTE (Department of Veterans Affairs Office of Inspector General, 2006c).

In FY 2005, the medical center had 3,028 admissions and 306,170 total outpatient visits. The total of 31,558 unique veterans treated comprised a 3 percent increase from FY 2004 (Department of Veterans Affairs Office of Inspector General, 2006c).

At the time of the VAOIG review, GIP and PIP data showed that the medical center's supply inventory included medical items valued at \$93,597, prosthetics items valued at \$61,225, and engineering items valued at \$69,954. To assess the accuracy

of GIP and PIP data, 34 line items were inventoried—20 medical, 4 prosthetics, and 10 engineering line items—with a recorded value of \$23,424. Except for one discrepancy, an overage of \$25, the VAOIG found that inventory records for prosthetics and engineering line items were accurate. However, stock levels for five medical line items in the SPD activity were inaccurate, with two shortages valued at \$401 and three overages valued at \$578. The actual value of the 20 medical line items inventoried was \$15,962, which was 1 percent higher than the recorded value of \$15,785. Applying this 1 percent to the total medical inventory, the restated value would be \$94,533 ($\$93,597 \times 1.01$), which was \$936 more than the recorded value. The inaccurate inventory records occurred primarily because SPD personnel and nursing staff did not promptly or accurately record receipts and distributions of supplies (Department of Veterans Affairs Office of Inspector General, 2006c).

The medical center needed to reduce stock levels of medical supplies. To determine if medical stock levels could be reduced while still meeting the medical center's needs, the VAOIG compared the quantities on hand to usage data for 20 medical line items. The VAOIG found that the medical center needed to reduce stock levels for 6 (30 percent) of the 20 line items. The value of the excess stock was \$2,051, which was about 13 percent of the actual value (\$15,961) of the 20 line items we

inventoried. Based on the restated value of the medical inventory, the estimated value of excess stock was \$12,289 (\$94,533 x 13 percent). Overstocking ties up money in stock and increases the risk of damage, outdating, contamination, or obsolescence of inventory items (Department of Veterans Affairs Office of Inspector General, 2006c).

Medical Center Profile - VA Illiana Health Care System,
Danville, Illinois

Located in Danville, IL, the system provides a broad range of inpatient and outpatient healthcare services. Outpatient care is also provided at four community-based outpatient clinics (CBOCs) located in Decatur, Peoria, and Springfield, IL; and West Lafayette, IN. The Effingham, IL, CBOC, which is affiliated with Marion, IL, VA Medical Center also serves some veterans from this system's catchment area. This system is part of VISN 11 and serves a veteran population of about 147,000 in a primary service area that includes approximately 34 counties in central and west central Illinois and west central Indiana (Department of Veterans Affairs Office of Inspector General, 2006d).

The system provides primary and secondary healthcare services including medical, surgical, and psychiatry. Nursing home care is provided in a skilled care environment with special focus on rehabilitation, Alzheimer's care, dementia, palliative, gero-psychiatric, and extended care. Ambulatory care services

offered include: primary care, ambulatory surgery, mental health, substance abuse, and specialty care. The system has 129 operating hospital beds and 217 operating nursing home beds. Administrative support is provided to two readjustment counseling centers in Peoria and Springfield and to two national cemeteries in Danville and Springfield. The system also has sharing agreements with National Emergency Services Government Services, United Radiology, Provena Health Care, Precision Diagnostic, and Southern Illinois University (Department of Veterans Affairs Office of Inspector General, 2006d).

In FY 2004, the system's medical care expenditures totaled \$126.3 million. The FY 2005 medical care budget was \$132.8 million, which was approximately 4.8 percent more than FY 2004 expenditures. FY 2005 staffing was approximately 1,180 full-time employee equivalents (FTE), including 49 physicians and 405 nursing FTE (Department of Veterans Affairs Office of Inspector General, 2006d).

In FY 2005, the system treated 30,638 unique patients, a 2 percent increase over FY 2004. The inpatient workload totaled 3,102 discharges, and the average daily census was 71 for the hospital and 203 for the nursing home. The outpatient workload was 241,123 visits (Department of Veterans Affairs Office of Inspector General, 2006d).

The October 26, 2005, GIP report showed that there were 1,110 items of engineering stock on hand. However, MMS staff had not recorded the costs in GIP for 671 (60 percent) of the 1,110 items. The value of the 439 engineering items that MMS did record costs for was \$49,644. According to the Chief, MMS, most of the engineering items with no costs recorded in GIP had been placed into inventory before GIP was implemented in August 2004 (Department of Veterans Affairs Office of Inspector General, 2006d).

To determine if GIP records were otherwise accurate, the VAOIG compared GIP inventory records for 45 stock items with amounts actually on hand. GIP records did not accurately reflect the stock on hand for 15 (33 percent) of the 45 items. Of the 15 incorrectly reported items, 9 were over reported (more stock reported in GIP than on hand) in GIP and 6 were under reported (less stock reported in GIP than on hand). Seven of the 15 items were engineering stock that had no costs entered in GIP. The net effect of the eight remaining incorrect entries was an over reporting of \$967 (Department of Veterans Affairs Office of Inspector General, 2006d).

According to the October 26, 2005, GIP report and the October 27, 2005, PIP report, the system had a total of 3,131 items of stock on hand with a value of \$511,459. Of these 3,131 items, 2,820 were reported in GIP and 311 were reported in PIP.

Of the 3,131 items, 2,563 (82 percent) exceeded the 30-day supply level. These 2,563 items had a value of at least \$284,676. The cost of engineering stock could not be accurately determined because the costs of all engineering stock had not been entered into GIP. System staff stated they were aware they had excessive amounts of stock on hand and that efforts were ongoing to reduce stock levels (Department of Veterans Affairs Office of Inspector General, 2006d).

POLICY OPTIONS

The facilities that were reviewed through the VAOIG CAP process served as a basis for the development of policy options in the implementation of GIP. In addition to the above practices, the evaluation of the situation at the Salt Lake City Health Care System as described in each of the policy options was included in the development of each option.

Policy Option 1 - Maintaining Current Operations

The Engineering Department at the Salt Lake City Medical Center is currently designed with 14 supply inventory areas, with 13 secondary locations in the varied engineering shops. These 13 secondary inventories are supplied by the primary supply account that currently is located in Building 38 for the main campus. Building 38 serves as a multipurpose building that not only includes the primary account but also includes extensive long stock supply storage from the secondary accounts. Additionally, Building 38 also serves as a storage area for non-supply inventory equipment such as portable air compressors and generators.

The purchasing support for the Engineering Department is one purchasing agent who is located in Building 11 of the main campus. This person is responsible for the total acquisition within the engineering department; this includes purchases under

the micro-purchase limit as established by Governmental Purchasing Policy. The purchasing agent is only responsible for acquisition activities and does not have any supply warehousing duties. The engineering department does not have any organic supply technicians to maintain inventory control. The primary account in building 38 is maintained as a joint effort by the entire engineering staff. The Engineering Department Manager has instituted a system of logging into building 38 upon entry and logging out upon exiting the building. The process of logging in and out of the building is an effort to control access and monitor the inflow placement of inventory and the removal of inventory items. The process of entry into Building 38 requires that the staff member of the engineering department must have had approval for unaccompanied access. If unaccompanied access permission was granted, the staff member still must check in with the engineering operations center located in the boiler plant. If a staff member enters into building 38 without the operations center being notified, the operations center will contact the VA police and have the entry investigated. The employees must only remove items purchased under their specific sub-account and complete a copy of the Inventory Transaction Sheet.

To accomplish total implementation of the Generic Inventory Package in the Engineering Department maintaining current

operating procedures, all items to be included in the GIP database in building 38 would need to be identified. Upon identification all items would then need to have appropriate storage locations identified that would provide for a systematic organization for the ease of locating stock and replenishment upon reordering depleted inventory. In the process of identifying storage locations for each of the items, each item would need a completed procurement stock card. The procurement stock card would then be assigned an Item Master File Number that would identify the item uniquely so that identical items may be subsequently purchased based on future demand. Information contained within the procurement stock card would include: the vendor product number, standardized nomenclature to include synonyms for the item, a complete description of the item, unit of purchase and unit cost. The procurement stock card would also identify the replenishment cycle, the reorder point and the reorder quantity.

Once the inventory control numbers are established, a complete wall-to-wall inventory would need to be completed. The inventory would then identify location and quantity of all stock located within Building 38 and the information could be utilized to barcode the items for future use. The barcode information however could be immediately uploaded in the computer system for establishment of the primary account that would reflect an

accurate supply inventory. With the accurate supply inventory completed, stock analysis and management would be critical to maintain the primary account with accurate on-hand levels, due-in inventory, and consumption rates that would be critical in the calculations of the parameters established for reporting purposes. It is those calculations that the VISN Director monitors in determining that supply operations are holding down costs, keeping inventory in stock that is necessary that allow the medical center to respond to the needs of the patient.

Policy Option 2 - Warehousing the Primary Account

This option would create a new account that is co-located with warehousing operations for the entire medical complex. The new account would be the primary account of the engineering department. GIP allows the creation of multiple primary accounts and does not restrict that two or more primary accounts being in the same physical location. With the development of the primary account in the warehouse, control of the account would be essentially shifted from the Engineering Department to the warehousing staff. Building 38 and its contents would become a secondary account that requires significant management to reduce excess and ensure that only the correct items are maintained as part of the inventory. Since it would be a joint secondary account, the procedures currently in use would need to be continued.

The account would be created with a collaborative effort of the warehousing and the engineering staffs deciding what items are the items purchased on a routine and continuous basis. The engineering staff would review their purchasing history with the purchasing agent and determine the items that are purchased for replenishment stocks versus those items purchased as one-time items or specific job order items. Once this determination is made the items would either be physically moved from the secondary accounts to the warehouse for the establishment of the primary account or be placed on order for inclusion into the primary account once received. The items delivered to the warehouse or placed on order for inclusion into the warehouse serve as the basis for the primary account. The warehousing staff would develop the procurement stock cards based on the items newly on hand and on order. Since the number of items is significantly smaller than the number of items in the secondary account, the amount of square footage for storage is relatively easy to calculate. The square and cubic footage is divided to allow each item to have its own storage place, locator cards with bar coding developed and stocks placed for distribution. The GIP system uploads the limited number of items, with accurate inventory counts and is operational almost immediately. The system will need to be reviewed and evaluated for the

correct items to be included and the correct stockage indicators to be developed.

The development of policies and procedures is critical for engineering staff to know what is available to them in the warehouse and what needs to be job ordered for specific jobs they are undertaking. With the separation of stock from the engineering department, they must develop skills in stock analysis and have a thorough understanding of their supply needs to ensure they are able not only to perform preventative maintenance, but respond to emergent repair situations that may have a potential negative impact to patient care.

Policy Option 3 - Building 38 Sole Primary Account

This option would require the establishment of the primary account in Building 38 under the control of the engineering department with ordering responsibility maintained by the warehouse staff.

To accomplish this option, the current inventory items of building 38 would need to be physically placed into the secondary accounts with only those items that are recurring purchases being retained in Building 38. The secondary accounts would temporarily expand with the inclusion of the overflow items being re-introduced into their respective secondary inventories. Once all excess inventory is removed, stock procurement cards would need to be developed, location for each

of the inventory items would need to be established and a wall-to-wall inventory would need to be completed. The inventory would need to be uploaded into the GIP for development of the primary account and tracking of the indicators utilized by the VISN Director for the determination of acceptable performance.

EVALUATIVE CRITERIA

The VASLCHCS Director's response to the OIG report called for a planned action that included final implementation of all GIP requirements within the Engineering department to be completed by October 3, 2005. The documentation containing sufficient information for the OIG to close the recommendation was not received at the OIG on October 3, 2005. Intermediate responses addressing progress in GIP implementation have been sent to the OIG, via the VISN 19 Director's Office on seven dates. The recommendation requiring the implementation of GIP in the Engineering Department remains open and must be completed by December 31, 2006. The efforts of the VASLCHCS staff ensured that they met the December 31 deadline with implementation of one of the policy options.

The VISN 19 Director uses reports and data generated by the GIP to evaluate performance of supply operations (U.S. Department of Veterans Affairs, 2002). The stock status report contains both financial and transactional information used in the computations of benchmarks indicating proper inventory management. The financial information used is the opening balance, receipts, issues, and adjustments. The transactional information includes the number of receipts, issues, and adjustments. The GIP program derives calculations through the utilization of a Master Item File Number, financial data, and

transactional data to arrive at turnover rate, percentage of inactive stock and percentage of long supply. The four reportable items as required to be reported by the U.S. Department of Veterans Affairs Handbook 7176 are: the closing balance, turnover rate, percentage of inactive stock, and percentage of long stock.

Criterion 1 - Closing Balance

The closing balance is defined as the dollar value of the on-hand inventory on the last day of the month. The closing balance is calculated by adding the dollar value of all purchases made during the month to the opening balance, which is the dollar value at the beginning of the month, then subtracting the dollar value of items used during the month and any adjustments made. Adjustments would include any outdated items and lost/stolen items during the month. This is a financial calculation that shows utilization of dollars in a given month. The standard set by the VISN Director is that the value should be less than at the start of the month. This would reflect less stock on hand, quicker turn of stock and few adjustments.

Criterion 2 - Turnover Rate

The turnover rate is a calculation within GIP that accounts for the number of times per month that stock is released and then ordered and replenished on the shelf. For optimum utilization of inventory ensuring products being available

versus too much inventory being on hand the turnover rate should be at least 16 times in a given month. The stock turnover rate would reflect the amount of times an item is re-ordered. This number must be managed very carefully because if you have too high of a number you run the risk of not having the item in stock when a demand for the item exists. Too low of a number means that you have excess stock on hand and run the risk of items outdating and you have tied up money and increased your stock storage/holding costs.

Criterion 3 - Percentage of Inactive Stock

Percentage of Inactive Stock reflects the amount of stock that has not had any activity in the past 270 days. The inactive stock again must be aggressively managed and the organization must determine if items on the inactive stock list continue to be maintained as part of the inventory or not. The reason for keeping the items on inactive stock is that if the item is life essential it should be maintained in stock. The number of a given item must be kept to an absolute minimum because of holding costs and space requirements. You also run the risk of outdates with your inactive stock items.

Criterion 4 - Percentage of Long Stock

Percentage of Long Stock reflects the amount of stock items that are part of the inventory that may reflect some activity in requests and demands, but the quantity on hand has been

established at a level that is too high for effective management. The Percentage of Long Stock for different classifications and categories varies, for example the amount of long stock for engineering must be a 50% or lower. This is a fairly generous level as it is more than double the percentage of any other category. This is the parameter that has been the toughest to achieve for the Salt Lake City HCS.

The evaluative criteria outlined for the VISN Director play an important role in determining which option is best to accomplish the implementation of GIP in the engineering department. As important to ensuring compliance to the VISN director's goals for performance and the VA Directives for program compliance is the utilization of the system design by the engineering department and the material management staff. These additional criteria need to be evaluated in the process of determining which policy option should be pursued.

Criterion 5 - Account Management

Account management is defined by the level of implementation of logistical practices. Logistical practices such as just in time ordering, carrying costs, reserve logistics capacity, demand and utilization analysis, and warehousing operations all need to be optimized for efficient operations. Without sound logistical practices being implemented, existing

practices will continue to dominate the overall account management.

Criterion 6 - GIP Utilization and Management

GIP is the prime tool used by the VA to manage stock inventory throughout their entire system all the way down to individual purchasing departments in a single medical center. Compliance to the utilization of GIP and the management of the GIP database varies from medical center to medical center and from departments within a given medical center as described by VAOIG CAP results.

The level of management of the GIP can impact the logistical performance within that management's range of influence. Poor logistical practices compounded with poor management of the GIP system has the potential to lead to complete mismanagement of the supply process.

Criterion 7 - GIP Implementation

The Office of the VA Inspector General conducted the Combined Assessment Program Review of the VA Salt Lake City Health Care System during the week of April 11 - 15, 2005. Report number 05-01248-170 was published on July 8, 2005 which indicated that the engineering department has failed to implement the use of the Generic Inventory Package (Department of Veterans Affairs Office of Inspector General, 2005). The VAOIG recommended to the VISN Director that he require the

SLCHCS Director to implement the GIP in the engineering department. The report indicated that both the VISN Director and SLCHCS Director agreed with the findings and recommendations. The planned action response in the report stated:

Acquisition & Material Management has exhausted all resources within the department and has been unable to completely assume the full responsibility for GIP. The Manager of A&MMS will complete a workload analysis to determine the additional number of FTE required completing the GIP implementation for the engineering department and submitting to the Executive Board for review no later than August 1, 2005. Final implementation of all GIP requirements within the engineering department will be completed by October 3, 2005. (p.18).

The VAOIG placed a full implementation date on the plan for October 2006. On June 29, 2006 the completion date of the implementation project was estimated to be completed November, 2006. In August a request was made for a completion date of March 2007, the VISN Director did not approve this date and mandated completion by December 31, 2006.

The completion time of the project became a focus area for both the VISN Director and the SLCHCS Director. In the trade-off analysis, the criteria used for the evaluation was whether

the policy option was likely to accommodate completion under the mandated date of December 31, 2006 or that it was unlikely to occur by that date.

Criterion 8 - Space Utilization

Space utilization is the final evaluative criterion used in the analysis of the implementation of GIP in the engineering department. At all times the engineering department strives to maximize space utilization. This means being able to place as many supplies into a given space as possible. To accomplish this space maximization they had previously installed a moveable storage rack system that increases shelf space in the same space by reducing the number of walkways between shelves. The evaluative criterion for space utilization is rated on the amount of materials being able to be placed into a given amount of space. The greater amount of supply inventory being able to be stored the better. This does not take into consideration organization, correct sizing of the stock inventory to needed demand or number of locations, and only looks at the effects to the primary account.

PROJECTED OUTCOMES

Compliance with the OIG recommendation must be a priority in that each dollar must be maximized in providing the highest standards of care through appropriate management controls. The implementation of GIP in the Engineering Department will allow the management staff to analyze operations over a multi-million dollar purchasing program. Operations of the Engineering Department will be measured by the management staff in terms of compliance with VAOIG Combined Assessment Program Directives for successful implementation and meeting the GIP requirements established by VA Directive. Success will be fully determined by the ability of the both Material Management and Engineering Departments to integrate an effective inventory management system that accounts for all items of inventory, reduces cost, reduces holding costs for the current inventory which allows fiscal management practices to maximize their budget spending power and the ability to sustain the operations once established.

The first policy option is maintaining the current operations. Table 1 lists the eight evaluative criteria and describes the impact of each to maintaining current operations. In maintaining current operations and complying with VAOIG findings, the engineering and materials management staff would be required to complete a 100 percent inventory process within

building 38. Upon completion of the inventory a systematic placement of the supply inventory would be required, however the space required for a systematic placement of materials would potentially fall short. The amount of items currently stored in building 38 easily exceeds its shelving and pallet storage limits as many items are double, triple and quadruple stacked. The amount of items would need to be reduced or expansion of storage capacity would need to occur. Building 38 already has an "expandable or movable" shelving unit and static shelving that occupies the remaining space. The only possibility for expansion would be related to new construction that would significantly delay compliance while waiting on financing for the construction. The amount of long stock currently in building 38 is virtually 100 percent, since it is currently used for overflow storage of the secondary supply area. The practice of ordering items for the secondary supply area when the item already exists in the overflow storage area has repeatedly occurred. This reorder practice without utilizing stock from the overflow storage delays the utilization of the items and increases the long stock percentage.

Under the current process, the engineering department does not have dedicated supply staff to control the flow of items in and out of the supply inventory in building 38. The impact is that the opening balance and closing balance of the previous

month is inaccurate. The balances will remain inaccurate by the continued removal and placement of stock inventory into building 38 without the transactions being captured in any tracking system. The process of removal fails to provide an accurate inventory, which affects the dollar value of the inventory. With inaccurate dollar values and no staff to manage the inventory, the stock status report would fail to provide the director an accurate picture of the effectiveness of supply management in the engineering department. Currently, there is no plan on adding supply staff to the engineering section

The second option was to create a new primary account in the warehouse. Table 2 lists the eight evaluative criteria and describes the impact of each when creating a new primary account in the supply warehouse. The warehouse is staffed and controlled by material management staff. They have the responsibility to receipt and track general use supply items for the entire medical center. They do not manage medical surgical supply items or prosthetic supply items. Each of those supply items are managed within their respective departments by department specific supply staff.

The warehouse staff has accountability and responsibility for all items brought into the warehouse for general use which includes the engineering department. The current practice occurring is that all items purchased by the engineering

department is routed straight to the engineering department thus bypassing all accountability within the warehouse. On paper however the warehouse has the primary account with 100 percent of the stock being moved to the secondary accounts at the same time as it is being receipted into the primary account. This creates a primary account without any inventory, which impacts the calculation of the turnover rate. The turnover rate as calculated by the GIP system begins to reach infinity, meaning the turnover rate is too great and indicating the need to increase the stock level. This would be a response to potential shortages, but truly is not reflective of the situation since all the inventory is immediately placed into the secondary accounts at levels greater than their true needs. The secondary accounts require a place to warehouse excessive amounts of stock inventory leading to the situation in building 38.

With the establishment of the primary account in the warehouse, the open balance and closing balance would be calculated based on a very limited number of items actually in stock in the warehouse. With the limitation of starting with relatively few items and a known starting point, the warehousing staff would be able to aggressively manage the dollar value to the inventory in respect to the opening and closing balances. In this process aggressive management of the long supply and inactive items would also occur. This would be possible because

of the limited number of items placed into the new account. Management of the long supply and inactive items along with the aggressive management of the rotational stock would result in turnover rates reflective of effective supply chain management. They would have on-hand items needed for operations without shortages occurring.

This option does not resolve the problem of the overstock in building 38. The engineering staff would still need to be responsible for the reduction of the overstock. The calculations would no longer be affected by the stock situation in building 38 and would truly reflect just in time supply operations that dictate minimal and essential supplies on hand in a primary account.

The final option would be that Building 38 becomes a sole primary account for the engineering department. Table 3 lists the eight evaluative criteria and describes the impact of having Building 38 become the sole primary account for the engineering department. The engineering staff would remove all long stock and inactive items from building 38 and place them in the secondary accounts for management by the end users. The secondary account managers would either place the items for active use, return items to vendors for credit or dispose of at a complete loss of value. The remaining items would become the primary account and be managed as a joint effort of the

engineering department and materials management staff. The reality of this would be that the reason items ended up in building 38 is that the secondary locations failed to have adequate storage for the amount of inventory they are ordering. The engineering department would still have access into the building with the ability to remove items without accountability of those items. The material management staff would have the responsibility to conduct inventories without the accountability of what items have been removed by the engineering staff. This situation would likely result in inventory dollar values becoming inaccurate because of the lack of accountability for removal and placement back into stock versus the timing of the re-order being placed.

Building 38 would be without anyone responsible for maintaining the supplies. Without aggressive management of the supplies, the long supply and inactive items would increase beyond the limits established by the director. Ultimately, the turnover rate would also fail to meet the limit established as items sit longer on the shelves. The turnover rate is negatively affected by the amount of items not moving from inventory and being put into service, decreasing below the optimal level of 16 turnovers per month. Under this option the engineering department would still have access into the building with the ability to remove items without accountability of those

items. The material management staff would have the responsibility to conduct inventories in which re-ordering would be based against. This situation would likely result in inventory dollar values becoming inaccurate because of the lack of accountability for removal and placement back into stock versus the timing of the re-order being placed.

Analysis of Trade-offs

The analysis of the three proposed policy options shows that in each of the policy options favorable, neutral and unfavorable characteristics exist. Since no one policy option provides a clear and decisive best outcome for each evaluative criterion, consideration of each of the characteristics must be evaluated against each other for complete analysis to occur. The evaluative criteria for which implementation and compliance to VA Directives relating to the Generic Inventory Package will be used to conduct the trade-off analysis.

The three policy options, current operations continued, warehousing the primary account, and sole primary account in building 38, each have characteristics that would impact each of the eight evaluative criteria. The trade-offs are primarily qualitative by design, but will reflect dollar values when possible.

Criterion 1 - Closing Balance

The first of the eight evaluative criteria is the final closing balance on the engineering primary account, which reflects the financial transactions for the given month. The opening balance reflects the dollar value of the account on the first day of the month and the closing balance reflecting the last day of the month. The adjustments to the balance would be the receipting of any new inventory, issued items valuation of

inventory put into use at the secondary account, and adjustment factors to account for lost stocks and outdated supplies in the primary account.

In looking at the three policy options the value under maintaining current operations would remain fairly neutral since many of the items have been in the inventory for an excessive amount of time. The neutral balance would reflect that the engineering staff puts into immediate use any new stock inventory purchased and they are not needlessly contributing to the over-stock problem that currently exists.

When creating the new primary account in the warehouse the financial balance on account would reflect a positive balance. This positive balance would be created by the fact that no stock was in the account and purchases would exceed issues to secondary accounts. This would be an initial problem primarily since aggressive management would limit purchases in balance with issues; however the warehouse staff can anticipate the numbers of items in the engineering account to increase slightly over time as recurring items are identified for inclusion in the primary account.

When creating the primary account as the sole occupant in building 38, the value would be a negative number reflecting the movement of the stock from the primary account to the secondary accounts. This would continue for several months since the

amount of movement would be greater than can be accomplished in a 1-month period. This is due to the limited capacity for storage in the secondary accounts in relation to the amount of items currently in building 38.

The best situation to be in is having a negative number on the report going to the VISN Director, followed by a neutral number and then a positive number. Both the neutral and positive number would be unacceptable under the current criteria used by the VISN Director. This evaluative criterion would favor the establishment of a sole primary account in building 38.

Criterion 2 - Turnover Rate

The turnover rate reflects the number of times the inventory stock is replenished in a month period. The VISN Director currently wants stock turnover 12 times a month. This is critical to financial management and must be balanced against the needs of the staff.

With excessive stock on hand, maximum utilization of money is not being achieved. High turnover rates indicate that inadequate amounts of supplies are available. This has the potential for a negative impact on patient care because needed supplies may not be available when needed. A high turnover rate also would financially impact a facility by not taking advantage

of volume purchasing at better prices and reduced restocking and accounting charges.

The current operation has a very low turnover rate. The cause of this situation is due to the excessive amount of inventory on hand. Even with the current purchasing program the turnover rate does not meet the required 12 turnovers per month.

Aggressive management of stock inventory by warehousing the primary account would allow for a rate near the expected 12 turnovers per month. This would follow a short period of a very high turnover rate since buying would drastically exceed the utilization rate, however this would only exist for the first 2 months.

In the sole inventory in building 38 option the issues would greatly exceed receipts with neutral purchasing resulting in a very high turnover rate. This would be excellent for reducing stock inventory but fails effective management practices for inventory control.

The best situation is to be on target with a turnover rate of 12 inventory turnovers per month. This evaluative criterion would favor the establishment of a new primary account in the warehouse.

Criterion 3 - Percentage of Inactive Stock

The number of inactive items in past 90 days is a metric that determines the dollar value percentage of items that have

had no issues in the past 90 days. The VISN Director has determined the threshold of this metric to be no more than 20 percent of the monthly closing dollar value to the account. Percentages higher than 20 indicates that you have excessive amounts of stock that is not being utilized. Higher percentages may result in items becoming obsolete and have the risk of losing total value by expiring prior to utilization. Lower percentages are favorable as they indicate aggressive stock inventory management. This aggressive management means that only needed items are on the shelf, with some minimal contingency planning factored in. A zero percentage would indicate a failure to have any contingency planning conducted for items that are low utilization but deemed mission essential and required to be on hand in the event of an emergency.

Current operations have excessive number of items that would be considered inactive items, thus resulting in a very high percentage of dollars held in inactive items. Many of the items currently in building 38 have been in stock for multiple years and the current stock inventory does not experience adequate utilization. Part of the reason for this is that the engineering department experiences a significant amount of seasonal purchasing and utilization and has failed to aggressively manage stock inventory.

With creating a primary account in the warehouse, the account would have zero items identified as inactive for the first 90 days. The account would also have minimal stock inventory to manage, but risks having a very high percentage because of the minimal stocks. This can be mitigated by careful selection of stock inventory for the new primary account and aggressively managing the stock they do purchase for the new primary account.

If building 38 is converted into a primary account only, the number of inactive items would be significantly decreased since those items would be moved from the primary account to the secondary accounts for utilization. With the reduction of the excess items and the retention of the recurring items in this account the percentage of dollar value would be very low. This is the favorable situation for this matrix item.

The zero balance of the new account is a self-limiting situation for the first 90 days and would correct itself after that. It does carry a significant amount of risk since the decision of what to carry in the inventory is being determined by perception of need and not based on any true utilization analysis.

This evaluative criterion would favor the establishment of a sole primary account in building 38.

Criterion 4 - Percentage of Long Stock

The amount of long stock reflects the total dollar value of items that have been in stock for greater than 270 days regardless of utilization. The VISN Director has determined that the threshold for this matrix in the engineering department primary accounts is 50 percent. Restated, that is half of the total dollar value of the complete inventory being allowed to be in stock for more than 270 days. The VISN Director has established a more stringent standard, as the central office of the VA has suspended the long stock matrix without defining resumption of the matrix at a set point in time. As such, the central office could at any time require compliance.

A greater percentage would indicate that excessive stock is on hand tying up the purchasing value of the dollars behind that stock. It also would drive up holding costs. Values less than 50 percent indicate aggressive management of seasonal and contingency stock.

The current operations if continued would exceed the matrix value of 50 percent as the amount of long stock is extremely excessive and no plan exists for a systematic reduction of the inventory.

The percentage of long stock inventory would be zero for the primary account if newly established in the warehouse under policy option two. This would be a limited factor for the first 270 days since the account and inventory is newly established.

Aggressive management would continue to be effective at keeping the percentage under the matrix limit.

In the policy option of creating a sole primary account in building 38, the amount of long stock would have a declining trend. Initially the percentage would exceed the matrix limit; however, the percentage would decline as the excess stock is pushed to the secondary accounts in the engineering departments.

This evaluative criterion would favor the establishment of a new primary account in the warehouse.

Criterion 5 - Account Management

The current operations have the engineering staff operating a primary account out of building 38 with no assistance from material management staff. Engineering staff currently order items they perceive are needed without any analysis of demand patterns and have historically placed excess items into building 38 for utilization based on perceived future needs. This has led to the extreme amount of overstock currently in building 38. Repercussions of this practice have resulted in duplicative purchasing patterns since the ability to locate items in building 38 has been inconsistent. Under continued operations this is unlikely to change, however it is a situation in which the engineering department has been able to be comfortable with.

With the establishment of a new primary account in the warehouse, the engineering staff will no longer be required to

determine the location of those items coming under recurring purchasing. The recurring purchased items will be located in the new account established in the warehouse. The utilization of excess stock in building 38 over time would reduce the problem of not being able to locate stock and the related duplicative ordering. The problem of duplicative ordering would greatly be reduced under the policy option of creating a sole primary account in building 38. With the movement of the excessive supply inventory into the secondary accounts, each of the 13 secondary accounts would have their full inventory in their primary work areas. This however would create extreme problems while trying to accomplish their primary mission of providing engineering support to the medical center.

With the expansion of warehousing space under the policy option of creating a new primary account for the engineering department under this evaluative criterion it would favor the establishment of a new primary account in the warehouse.

Criterion 6 - GIP Utilization and Management

The other primary player in the establishment of the Generic Inventory Package is the material management staff. The GIP is their prime tool for management of stock inventory in the engineering department. Each of the policy options need to be evaluated for the impact on the material management operations so that the selected option is not overly burdensome upon them.

The current practice does not include any significant involvement by the materials management staff as supplies for the engineering department are handled on a pass through basis. The pass through is the process by which all supplies ordered are passed through the current primary account and immediately placed into the secondary account. The delivery of supplies is done as a direct delivery to the engineering department without ever being handled by the warehouse staff. Under the current process the materials management staff has very limited involvement relating to the management of the stock inventory located in building 38. If this policy option was to be continued, the impact upon the material management staff would be very minimal. Their involvement does increase under the other two options.

Under the policy option of creating a new primary account in the warehouse, the impact would be moderate. Since this new account would contain very limited numbers of items placed into a location that has adequate space requiring the materials management staff to only exercise a skill set they already are proficient at.

The impact upon the materials management staff increases significantly under the third option of the sole primary account being established in building 38. The materials management staff would be required to reduce a significant amount of excess

supply inventory while creating a new account in a building that was not previously their responsibility.

For the ease of implementation involving the materials management staff under this evaluative criterion, continuing current operations would be favored.

Criterion 7 - GIP Implementation

If the current operations was continued it would be unlikely that the completion of the implementation of the GIP would occur. Building 38 contains an excessive amount of supply inventory that would need to be inventoried, sorted, cataloged, space identified and uploaded into the computer system. The estimation of the inventory piece completion was November 2006, with multiple steps required after that initial step in the process.

If establishment of a new account in the warehouse was undertaken, GIP could be easily implemented by the timeframes directed. The materials management staff would have very few items that are recurring purchase items and no significant amount of current stock inventory levels to enter into the computer system. Under this policy option the materials management staff has the inventory location in their work area and allows for a very orderly stock placement. The final policy option has the same challenges as if they continued under policy option one, maintaining current operations. The materials

management staff would still have an excessive amount of stock inventory in the primary account in building 38. They would be able to push a significant amount of items into the secondary accounts, however this would be a very time consuming process. Under the policy option of creating a sole primary account in building 38 it is unlikely that they would be able to complete the implementation of GIP by the mandated date of December 31, 2006. To meet the mandated time frames for the implementation of GIP in the engineering department, creating the new primary account in the warehouse would be favored.

Criterion 8 - Space Utilization

Under current operations continued, space utilization is very high since an excessive amount of stock inventory is currently being stored in building 38.

If the primary account is located in the warehouse as a new primary account the amount of inventory essentially remains the same; however the amount of space in which it is stored increases. The increase of space with very limited increase in inventory would reduce space utilization.

If the sole primary account is established in building 38, a significant amount of stock inventory would have to be removed from building 38 and placed into the secondary accounts. The impact of this would be that fewer items would be placed in

building 38 reducing the amount of inventory and decrease space utilization effectiveness.

To factor the effect of space utilization, continuing current operations would be favored.

With none of the policy options displaying dominance among the eight evaluative criteria, analysis of the criteria must take place to determine the best course of action. For example the space utilization criterion only looks at the amount of stock inventory placed into a given location. Each of the policy options uses space differently and does not look at the excessive stock items, outdated items still in the inventory or the ability to accommodate just in time logistics. These mitigating factors will need to be evaluated when making recommendations as to what policy option would best complete the implementation of the Generic Inventory Package in the engineering department.

Recommendations

Implementation of the Generic Inventory Package must be completed as directed by the VISN Director by December 31, 2006. The evaluative criterion of time therefore is the critical element in determining which of the policy options is to be followed. The development of strategies for compliance with the findings of the VAOIG was developed after an initial introduction to this issue in August 2006. The three policy options were developed in conjunction with the Director of Engineering and the Supervisor, Acquisition and Material Management. We presented the policy options to the senior management staff in early October, 2006 and were immediately directed to implement a policy option for compliance.

The expectation of the VISN Director is that total implementation of GIP occur, not only for the primary accounts, but to include all secondary accounts as well. The establishment of the primary account is the first critical step in the implementation process, and is logically followed by the utilization of GIP for all secondary accounts. The primary account is what is currently being monitored for expenditures, turnover rates, inactive stock inventory and long stock inventory. With the ability to look at secondary accounts under the same criteria, the implementation plan needs to cover short term goals as well as long term goals. Long term goals should

be prioritized and based off of effective inventory management practices that maximize the utility of budgeted dollars against providing effective engineering services. Patient care concerns need to remain the focus of all sections of the medical center including the engineering department. Current supply operations in the engineering department have failed to maximize the utility of their budget. They have excessive amounts of stock inventory in building 38 that has been part of their on-hand quantity for numerous years. There is a holding cost associated with having this excess stock on hand and not using it. The current operations, even with modification, do not appear to be designed to meet the needs of an effective inventory management program. This policy option should not be recommended as a solution for correction of the failure to implement the Generic Inventory Package.

Creating a new account in the supply warehouse is favored by most of the evaluative criteria. The largest benefit of this option is that the primary account can be created almost immediately. Upon the immediate creation, most of the numerical evaluative criterion would be met and would reflect acceptable numbers that would be sent forward to the VISN Director. Material Management staff is able to exercise the greatest amount of control over the account and would allow for continued success as a primary account. The problem that develops with

this policy option is that it only focuses on the primary account and fails to look at the long term goal of total GIP implementation in all secondary accounts. Since the focus of the VISN Director is the establishment of the primary account and with his establishment of a short deadline for that establishment, this policy option should be undertaken.

Effective management practices over the long term should incorporate the implementation of GIP into all accounts, both primary and secondary. The policy option that is best suited to accomplish the directive of total GIP implementation is the development of the sole account into building 38. Significant modification in practices would need to be included, this includes changes to material management staffing in the engineering department. The engineering department staff would also need to modify their current purchasing practices, but this can only be done in conjunction with changes in staff patterns. The engineering staff does not include any purchasing agents nor does it include any inventory management staff, therefore the spending practices are unchecked and inventory management is not monitored. The SLCHCS has decentralized the purchasing and inventory management programs for medical supplies and prosthetic supplies. Each of those departments includes purchasing agents as well as supply technicians for inventory management. The largest purchasing department in the VA is the

engineering department, and coverage is provided by one purchasing agent on a part time basis. With the increased lead time for the execution of purchases the practice of bulk purchasing remains the practice. The engineering department staff should be supplemented with a minimum of three purchasing agents and at least two supply technicians. The need for the three purchasing agents is to work directly with engineering staff on all projects they plan to undertake. The engineering department has a staff that does small size projects to minor renovations involving a significant amount of purchasing. They also have the need for supply technicians to assist engineering staff at inventory management. The supply functions need to be centralized for projected work orders, and decentralized for shop stock supplies. Building 38 provides adequate space for the storage of project work order stock and recurring purchase items for the entire engineering department, but fails to have adequate space for the excessive amount of long stock and inactive stock they currently have on hand.

The combination of establishment of the new primary account in the warehouse along with the development of the decentralized supply operations in the engineering department would best meet the overall goal of total implementation of GIP at the SLC VA. At this point the best course of action would be the establishment of the new primary account and prepare for

increased requirements involving the secondary accounts.

Maximizing financial utility of the inventory budget is critical for responsible fiscal policy initiatives at the VA.

Conclusions

The senior management of the VASLCHCS was presented with the three policy options for their review in October 2006. The senior management selected the policy option of establishing a new primary account in the warehouse for immediate implementation. The senior management, upon their selection, placed the responsibility for implementation on the Director of Engineering and the Supervisor, Acquisition and Material Management. These two leaders implemented the policy option and were operational on December 15, 2006.

The implementation of this new primary account resulted in immediate improvement in all the fiscal evaluation criteria. Additionally, the engineering department did not experience any delays in receiving the recurring purchases and there was minimal impact on the material management staff. The impact that was realized was increased storage shelving. This was achieved due to space previously used for bulk-palletized storage that was underutilized being converted to shelving storage.

None of the personnel changes will be occurring since the department managers for both engineering and material management feel that the personnel situation is adequate to address staffing needs for stock inventory control. No preparations for long term management of the secondary accounts are occurring for

long term effective management of the secondary accounts, which is where the majority of supply inventory is currently residing.

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Table 1.

Outcome Matrix - Maintaining Current Operations

Evaluative Criteria	Impact
Closing Balance	Would remain relatively stable since operation not significantly changed.
Turnover Rate	Very low turnover rate since stock not being utilized.
Percentage Inactive Stock	Maintaining an excessive percentage of inactive stock.
Percentage Long Stock	Continuation of failure to meet this criterion.
Account Management	Management of account remains with the engineering staff resulting in poor stock inventory control.
GIP Utilization	GIP currently not being utilized.
GIP Implementation	GIP implementation is not likely to occur.
Space Utilization	Space utilization is high but much unorganized resulting in inefficiencies.

Table 2.

Outcome Matrix - Warehousing the Primary Account

Evaluative Criteria	Impact
Closing Balance	A relatively small positive balance reflective of no initial inventory being carried in the new primary account.
Turnover Rate	Large turnover rate would be realized since only high consumption items would be initially purchased.
Percentage Inactive Stock	No Inactive stock would be realized for the first 90 days.
Percentage Long Stock	No long stock would be realized for the first 270 days.
Account Management	Management would shift to supply staff with specific training and expertise in supply inventory controls.
GIP Utilization	Full utilization would be achieved due to minimal inventory.
GIP Implementation	GIP implementation would occur with little impact due to low volume of stock and involvement of supply staff.
Space Utilization	Space utilization is decreasing since additional square footage is added without increase in stock inventory.

Table 3.
Outcome Matrix – Building 38 Sole Primary Account

Evaluative Criteria	Impact
Closing Balance	A declining balance because of the utilization of current inventory.
Turnover Rate	The turnover rate would be improving but not meet goal.
Percentage Inactive Stock	The percentage would be improving with movement of supplies to secondary accounts.
Percentage Long Stock	The percentage would be improving with movement of supplies to secondary accounts.
Account Management	Management of account would remain with engineering with support from the supply staff.
GIP Utilization	Utilization would increase slowly due to volume of stock inventory and involvement of supply staff.
GIP Implementation	GIP implementation implemented with significant problems due to volume of stock inventory.
Space Utilization	Space utilization remains the same.